

(12) UK Patent Application (19) GB (11) 2 258 953⁽¹³⁾ A
(43) Date of A publication 24.02.1993

(21) Application No 9118060.4

(22) Date of filing 21.08.1991

(71) Applicant
Kun-Nan Lo
No 33 Hsiang-Ho Road, Li-Lin Tsun, Tan-Tzu Hsiang,
Taichung Hsien, Taiwan

(72) Inventor
Kun-Nan Lo

(74) Agent and/or Address for Service
Frank B Dehn & Co
Imperial House, 15-19 Kingsway, London, WC2B 6UZ,
United Kingdom

(51) INT CL⁵
H05K 9/00

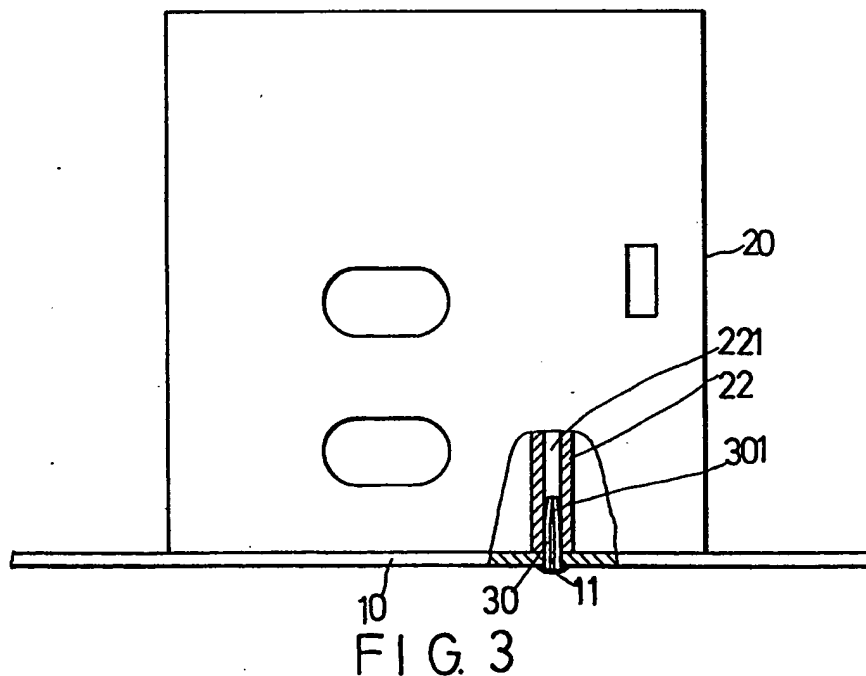
(52) UK CL (Edition L)
H1R RBH

(56) Documents cited
GB 2209436 A GB 2206745 A GB 2027278 A
GB 1066986 A EP 0265285 A2 EP 0262332 A2
US 4567317 A

(58) Field of search
UK CL (Edition K) H1R RBH
INT CL⁵ H05K

(54) Circuit board and shielding housing

(57) A circuit board 10 has an aluminum housing 20 mounted thereon, the housing 20 having elongated projections 22 with a through bore, a plurality of pins 30 each having one end fixed in circuit board 10 and the other end passing through a mounting hole 11 of the circuit board and inserted into the through bore of one of the elongated projections 22. Housing 20 may shield a transformer.



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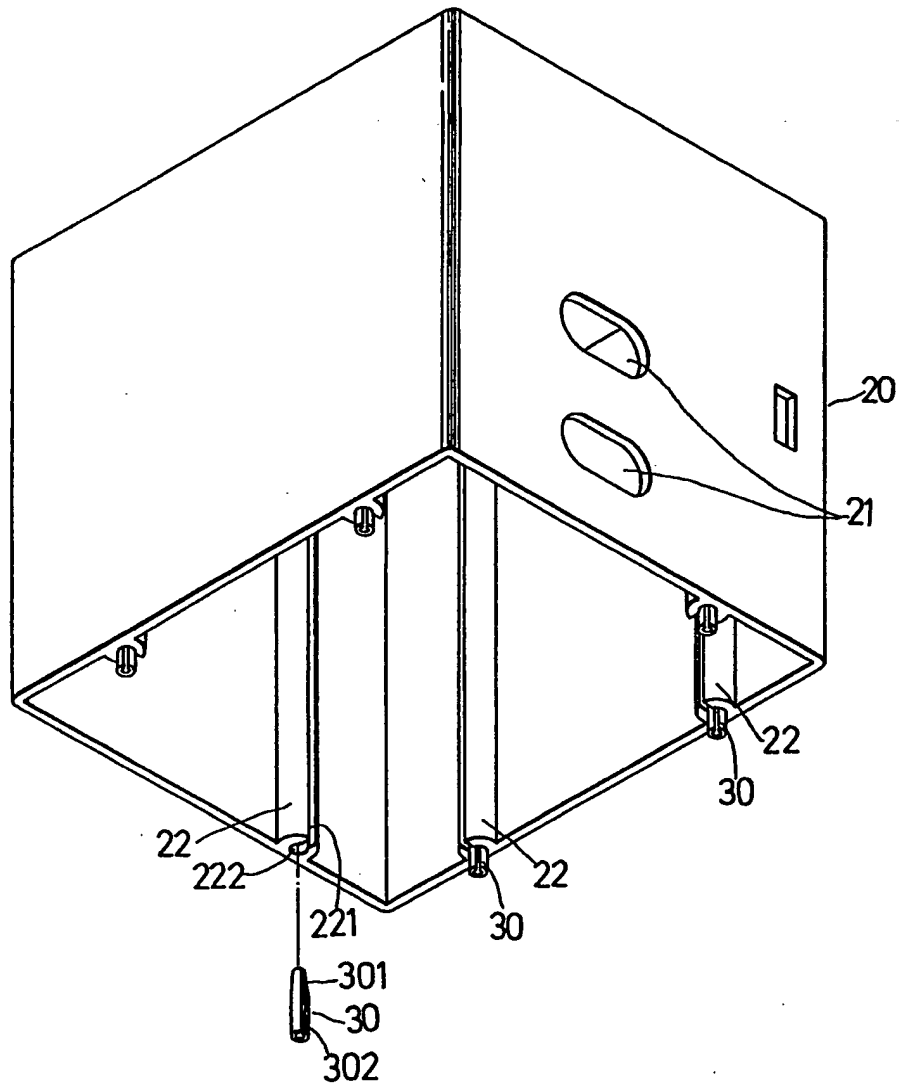


FIG. 1

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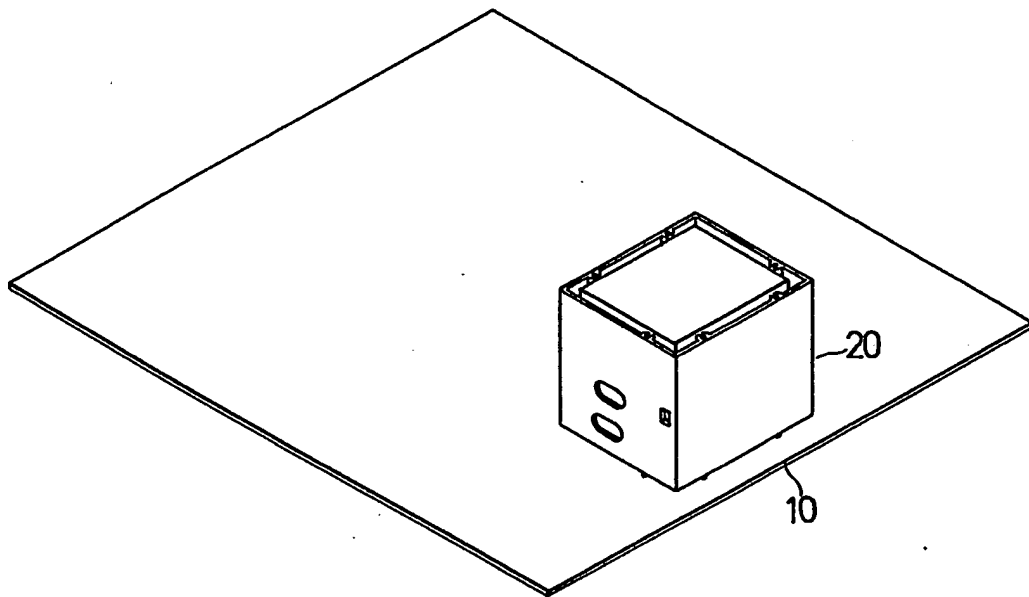


FIG. 2

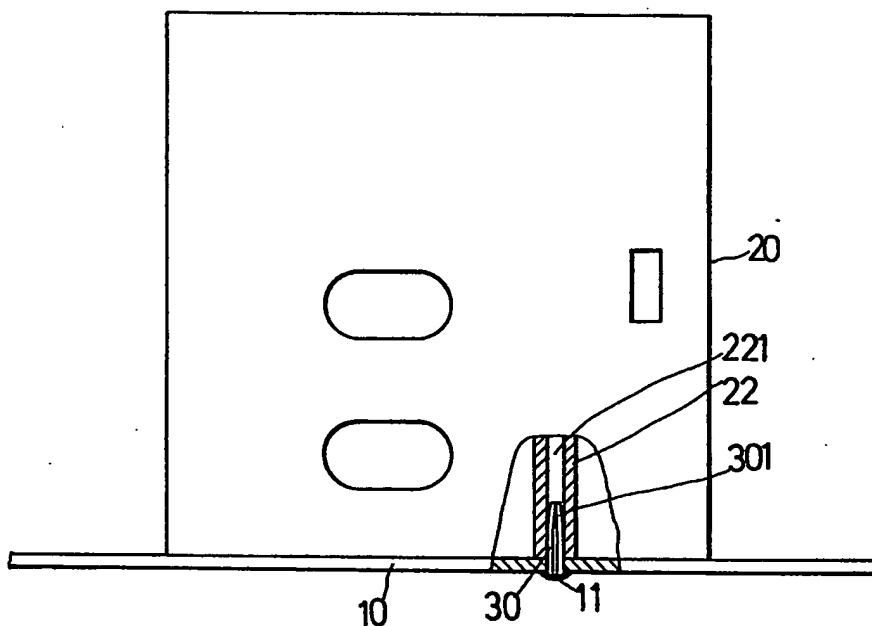



FIG. 3

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CIRCUIT BOARD AND SHIELDING HOUSING

The invention relates to a housing and a circuit board, more particularly to the construction method of
5 a housing on a circuit board for example for shielding a transformer and associated parts, also mounted on the circuit board.

As it is well known a circuit board of a computer comprises a plurality of electronic subassemblies, a
10 transformer and other associated parts. The transformer is generally isolated from all the electronic subassemblies by an aluminum housing. The purpose of the aluminum housing is to prevent heat dissipation and magnetic flux of the transformer from affecting the
15 functioning of the electronic subassemblies. It has been found that a lot of work has to be done to mount said aluminum housing on said circuit board because the housing is first mounted on the circuit board and later secured by means of screws. Occasionally, when it is
20 desired to disassemble the housing from the circuit board, each of the screws must be loosened and only then can the housing be removed from the circuit board. This is very inconvenient.

Therefore, the main object of the present invention
25 is to provide a  housing having means to mount it on a circuit board of for example a computer easily and more conveniently than prior models.

According to one aspect of the invention there is provided a circuit board having a housing mounted thereon, said housing having a plurality of bores, said circuit board having plurality of holes aligned with said bores, and there being a plurality of pins extending through said aligned holes and bores wherein said housing is secured to the circuit board so as to be held in place during normal use and the application of a predetermined force causes the housing to be separated from the circuit board.

According to a second aspect of the invention, there is provided a circuit board having a shielding housing mounted thereon, characterised by:

said housing having at least one side wall generally perpendicularly mounted on said circuit board, the or each said side wall having at least one elongated projection extending substantially perpendicular to said circuit board, the or each said elongated projection having a through bore formed along its length;

said circuit board having a plurality of mounting holes therein; and

a plurality of pins each of which has one end fixed to said circuit board and the other end passing through one of said mounting holes of said circuit board and inserted into one of said through bores of said elongated projections.

In one embodiment, an aluminum housing mounted on a circuit board of a computer for shielding a transformer includes an top open end, an bottom open end and four side walls interconnecting the top open end and the bottom open end. Each wall has at least one elongated projection extending from the top open end towards the bottom open end, perpendicular to the circuit board. Each of the elongated projections has a through bored along its length. The circuit board has a plurality of mounting holes therein. Each of a plurality of pins, has a first end fixed in the circuit board and a second end passing through the mounting hole of the circuit board and inserted into the through bore of one of the elongated projections.

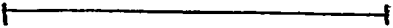
Other features and advantages of the present invention will become more apparent in the following detailed description, including drawings, all of which show an exemplifying embodiment of the present invention, and of which:


Figure 1 is a schematic, perspective view of an aluminium housing.

Figure 2 is a perspective view of the aluminum housing of Figure 1, mounted on a circuit board.

Figure 3 illustrates how the housing is mounted on a circuit board.

Referring to Figure 1, an aluminum housing

5  is shown to comprise a top open end, a bottom open end and four side walls interconnecting the top open end to the bottom open end. Each of the four side walls has a plurality of elongated projections 22 extending from the top open end towards the bottom open end. Each of the elongated projections 22 has a through bore 222 along its length.

10 The circuit board 10  has a plurality of mounting holes 11 therein. The housing 20 is placed on the circuit board 10 in a such manner that the elongated projections 22 are disposed perpendicular to the circuit board 10. Each of a plurality of pins 30, has a first end 302 fixed in the circuit board 10 and a second end passing through one of the mounting holes of the circuit board 10 and inserted into the through bore 222 of one of the elongated projections 22, as shown in Figure 3. Then, the pins 30 are soldered by a known related art. It is to be understood that the soldering attaches the housing 20 to the circuit board 10 strongly enough to resist undeliberate displacement, but not strongly enough to withstand a deliberate pull by an ordinary man. So, that when it is desired to remove the aluminum housing, one only has to impart a little force, thus can save a lot of work and precious time.

25 The four side walls of the housing 20 define a space for enclosing a transformer (not shown) also

provided on the circuit board 10. The aluminium housing 20 can prevent heat and magnetic flux produced and caused by the transformer from affecting the electronic subassemblies located around the housing 20.

5 The housing 20 further has a plurality of holes 21 in the walls which are provided to facilitate electrical connections.

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Claims

1. A circuit board having a housing mounted thereon, said housing having a plurality of bores, said circuit board having plurality of holes aligned with said bores, and there being a plurality of pins extending through said aligned holes and bores wherein said housing is secured to the circuit board so as to be held in place during normal use and the application of a predetermined force causes the housing to be separated from the circuit board.

2. A circuit board as claimed in claim 1, wherein said housing is for shielding a transformer.

3. A circuit board as claimed in claim 1 or 2 wherein said housing comprises aluminium.

4. A circuit board as claimed in any preceding claim wherein the housing is attached to said circuit board by soldering.

5. A circuit board having a shielding housing mounted thereon, characterised by:

said housing having at least one side wall generally perpendicularly mounted on said circuit board, the or each said side wall having at least one elongated projection extending substantially perpendicular to said circuit board, the or each said elongated projection having a through bore formed along its length;

said circuit board having a plurality of mounting holes therein; and

a plurality of pins each of which has one end fixed to said circuit board and the other end passing through one of said mounting holes of said circuit board and

inserted into one of said through bores of said elongated projections.

6. A circuit board as claimed in claim 5, wherein each of said elongated projections has an axial slit extending along the same.

7. A circuit board as claimed in claim 5 or 6 wherein said housing comprises aluminium.

8. A housing substantially as described heretobefore with reference to Figures 1 to 3.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

9118060.4

Relevant Technical fields

(i) UK CI (Edition K) H1R: RBH

(ii) Int CI (Edition 5) H05K

Search Examiner

M WHITE

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

28 OCTOBER 1991

Documents considered relevant following a search in respect of claims 1-8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2209436 A (MOTOROLA) eg mounting tabs 17	Claims 1 and 5 at least
X	GB 2206745 A (FUJI XEROX) whole document eg Figure 4	Claims 1 and 5 at least
X	GB 2027278 A (B-B RESEARCH) eg Figure 1	Claims 1 and 5 at least
X	GB 1066986 (R & S. H.K GES) eg Figure 1	Claims 1 and 5 at least
A	EP 0265285 A2 (I S CO INC) whole document cf Figures for example	Claims 1 and 5 at least
X	EP 0262332 A2 (SIEMENS) eg Figures 1,2	Claims 1 and 5 at least

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Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

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Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

9118060.4

Relevant Technical fields

(i) UK CI (Edition) Contd. from page 1

(ii) Int CI (Edition)

Search Examiner

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

Documents considered relevant following a search in respect of claims

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	US 4567317 (C P INC) eg Figure 2	Claims 1 and 5 at least



Category	Identity of document and relevant passages	Relevance to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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